Section I: AQMD BACT Determinations

Application No.: 245157

Equipment Category – Landfill Gas Gathering System

1. GENERAL INFORMATION

DATE: 06/08/2001

A. MANUFACTURER:

B. TYPE: Landfill Gas Flaring System (4 new flares being added to existing 3-flare system)

C. MODEL:

D. STYLE:

E. APPLICABLE AQMD REGULATION XI RULES: 1150.1

F. COST: $ (2000) SOURCE OF COST DATA:

G. OPERATING SCHEDULE: 24 HRS/DAY 7 DAYS/WK 52 WKS/YR

2. EQUIPMENT INFORMATION

APP. NO.: 245157

A. FUNCTION: Burns landfill gas to destroy organic gases.

B. MAXIMUM HEAT INPUT: 248 MMBtu/hr

C. MAXIMUM THROUGHPUT: 8750 scfm

D. BURNER INFORMATION: NO.: one per flare TYPE: hexagonal, spud-type

E. PRIMARY FUEL: landfill gas

F. OTHER FUEL:

G. OPERATING CONDITIONS: Landfill gas flow and Btu value vary with weather conditions and gradually decline over time. One or more flares may be shutdown when gas flow is low.

3. COMPANY INFORMATION

APP. NO.: 245157

A. NAME: City of Los Angeles, Bureau of Sanitation

B. SIC CODE: 4953

C. ADDRESS: 11950 Lopez Canyon Road
CITY: Los Angeles STATE: CA ZIP: 91342

D. CONTACT PERSON: John Hamilton

E. PHONE NO.: 818-834-5115

4. PERMIT INFORMATION

APP. NO.: 245157

A. AGENCY: SCAQMD

B. APPLICATION TYPE: modification

C. AGENCY CONTACT PERSON: Linda Dejbakhsh

D. PHONE NO.: 909-396-2614

E. PERMIT TO CONSTRUCT/OPERATE INFORMATION: P/C NO.: ISSUANCE DATE: 8/28/1991
☐ CHECK IF NO P/C P/O NO.: F38381 ISSUANCE DATE: 3/29/ 2001

F. START-UP DATE: 12/91 (estimate at time of application)

5. EMISSION INFORMATION

APP. NO.: 245157

D7. SOURCE TEST/PERFORMANCE DATA RESULTS AND ANALYSIS:

DATE OF SOURCE TEST: 8/99 (3 flares tested), 8/00 (one flare tested) CAPTURE EFFICIENCY:

DESTRUCTION EFFICIENCY: 98.3 (8/99, avg.), 98.5 (8/00) OVERALL EFFICEINCY:

SOURCE TEST/PERFORMANCE DATA:

OPERATING CONDITIONS: For these tests, the flares were operating at approx. 40-60% of their max. permitted flow rate. The following pollutant concentrations were found: NOx .045 lb/MMBtu or less, CO .008 lb/MMBtu or less, PM 4.79 lb/MMSCF landfill gas or less.

TEST METHODS:

6. COMMENTS

APP. NO.: 245157

In this example, the landfill gas flares are being operated with pollutant concentrations below the following limits: NOx .06 lb/MMBtu, CO .01 lb/MMBtu, PM 6.1 lb/MMSCF landfill gas. This NOx limit is already contained in Part D of the BACT Guidelines (guidelines for non-major facilities). The CO and PM limits are thus the significant information in this listing. The CO limit of .01 lb/MMBtu appears to be a relatively low limit and may not be achievable in all cases.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Flare

	Criteria Pollutants					
Rating/Size	**VOC**	**NOx**	**SOx**	**CO**	**PM_{10}**	**Inorganic**
Digestor Gas or Landfill Gas from Non-Hazardous Waste Landfill	Ground Level, Shrouded, ≥ 0.6 Sec. Retention Time at ≥ 1400 °F, Auto Combustion Air Control, Automatic Shutoff Gas Valve and Automatic Re-Start System (1988)	0.06 lbs/MM Btu (1988)		Ground Level, Shrouded, ≥ 0.6 Sec. Retention Time at ≥ 1400 °F, and Auto Combustion Air Control (1988)	Knockout Vessel (1988)	
Landfill Gas from Hazardous Waste Landfill	Ground Level, Shrouded, ≥ 0.6 Sec. Retention Time at ≥ 1500 °F, Auto Combustion Air Control, Automatic Shutoff Gas Valve and Automatic Re-Start System (1988)	0.06 lbs/MM Btu (1988)		Ground Level, Shrouded, ≥ 0.6 Sec. Retention Time at ≥ 1500 °F, and Auto Combustion Air Control (1988)	Knockout Vessel (1988)	

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guideline

Source Category

Source:	***Flare - Digester Gas or Landfill Gas from Non-Hazardous Waste landfill***	Revision:	***1***
		Document #:	***80.1***
Class:	***All***	Date:	***12/16/91***

Determination

POLLUTANT	BACT 1. Technologically Feasible/ Cost Effective 2. Achieved in Practice	TYPICAL TECHNOLOGY
POC	1. *n/d* 2. *Ground level, enclosed, ≥0.6 sec. retention time at ≥1400°F, auto combustion air control, automatic shoutoff gas valve and automatic re-start system*[b]	1. *n/d* 2. *BAAQMD Approved Design and Operation*[b]
NOx	1. *≤0.06 lb/MMBtu* 2. *0.06 lb/MMBtu*	1. *n/s* 2. *n/s*
SOx	1. *Scrubbing and/or carbon adsorption for hydrogen sulfide removal*[c] 2. *n/d*	1. *BAAQMD Approved Design and Operation*[b] 2. *n/d*
CO	1. *n/d* 2. *Same as for POC above* [b]	1. *n/a* 2. *BAAQMD Approved Design and Operation*[b]
PM_{10}	1. *n/s* 2. *n/s*	1. *Fuel Gas Filter* 2. *Knockout Vessel*
NPOC	1. *n/a* 2. *n/a*	1. *n/a* 2. *n/a*

References

b. BAAQMD
c. CARB/CAPCOA Clearinghouse

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.4.3*

Last Update: 1/8/2001

Landfill Gas Vapor Collection System

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
NOx	0.06 lb-NOx/MMBtu	0.05 lb/MMBtu	
PM10	Air assist fan	Steam injection	
SOx		Wet Scrubber with 98% control efficiency	
VOC	Flare with a control efficiency of (= or >) 98% or a controlled VOC (measured as methane) of (= or <) 20 ppmv @ 3% O2		

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in s a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Next Page(s)**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.4.3 A

Emissions Unit: Landfill Gas Vapor Collection System

Equipment Rating: 24 MMBtu/hr Enclosed Flare System

Facility: Geer Road Landfill

References: ATC #: N-3104-2-0
Project #: N-950062

Location: Modesto, CA

Date of Determination: 10/1/1995

Pollutant	BACT Requirements
CO	BACT NOT TRIGGERED
NOx	NOx Emission Concentration Of 0.05lb/MMBtu
PM10	Air assist fan with a PM10 Emission Concentration of 0.1 lb/MMBtu
SOx	SOx Emission Concentration Of 0.04 lb/MMBtu
VOC	BACT NOT TRIGGERED

BACT Status:

- ☐ Small Emitter
- ☐ T-BACT
- ☐ Achieved in Practice
- ☑ Technologically feasible BACT
- ☐ At the time of this determination achieved in practice BACT was equivalent to technologically feasible BACT
- ☐ Contained in EPA approved SIP
- ☑ The following technologically feasible options were not cost effective:
  SOx Scrubber
- ☐ Alternate Basic Equipment
- ☐ The following alternate basic equipment was not cost effective:

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.4.3 B

Emissions Unit: Landfill Gas Vapor Collection System

Equipment Rating: 5.0 MMBtu/hr Flareed Flare

Facility: San Joaquin County - Corral Hollow Landfill

References: ATC #: N-4363-1-0
Project #: N-1000298

Location: Tracy, CA

Date of Determination: 1/8/2001

Pollutant	BACT Requirements
CO	BACT NOT TRIGGERED
NOx	BACT NOT TRIGGERED
PM10	BACT NOT TRIGGERED
SOx	BACT NOT TRIGGERED
VOC	Flare with a control efficiency of (= or >) 98% or a controlled VOC (measured as methane) emission concentration of (= or <) 20 ppmv @ 3% O2.

BACT Status:

- [x] Small Emitter
- [ ] T-BACT
- [x] Achieved in Practice
- [ ] Technologically feasible BACT
- [ ] At the time of this determination achieved in practice BACT was equivalent to technologically feasible BACT
- [ ] Contained in EPA approved SIP
- [ ] The following technologically feasible options were not cost effective:
- [ ] Alternate Basic Equipment
- [ ] The following alternate basic equipment was not cost effective:

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.4.4*

Last Update: 5/16/2006

Digester Gas-Fired Flare

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
CO	operating in accordance with the manufacturers' specifications in order to minimize CO emissions		
NOx	enclosed flare and NOx emissions <= 0.06 lb/MMBtu	Ultra Low-NOx flare with NOx emissions <= 0.03 lb/MMBtu	
PM10	smokeless combustion and a LPG or natural gas fired pilot		
SOx	LPG or natural gas fired pilot	1. Dry absorption of H2S from the fuel gas 2. Wet absorption of H2S from the fuel gas 3. Influent fuel H2S reduction by addition of chemicals to the digester gas sludge 4. Water scrubbing of H2S from the fuel gas	
VOC	enclosed flare and VOC emissions =< 0.068 lb/MMBtu		

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in s a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source - Permit Specific BACT Determinations on Next Page(s)**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.4.4 A

Emissions Unit: Digester Gas Flare fired pilot

Equipment Rating: 36 MMBtu/hr

Facility: City of Stockton Municipal Utilities Department (Regional Waste Water Control Facility)

Location: Stockton, CA

References: ATC #:N-811-18-0
Project #: 950303

Date of Determination: 12/20/1995

Pollutant	BACT Requirements
CO	CO emission concentration of 1.57 lb/MMBtu
NOx	NOx emission concentration of 0.06 lb/MMBtu
PM10	PM10 emission concentration of 0.02 lb/MMBtu, smokeless combustion and a natural gas or LPG fired pilot
SOx	Natural gas or LPG fired pilot
VOC	VOC emission concentration of 0.07 lb/MMBtu

BACT Status:

- ☐ Small Emitter
- ☐ T-BACT
- ☑ Achieved in Practice

  Smokeless combustion and a LPG or natural gas fired pilot
- ☑ Technologically feasible BACT
- ☐ At the time of this determination achieved in practice BACT was equivalent to technologically feasible BACT
- ☐ Contained in EPA approved SIP
- ☑ The following technologically feasible options were not cost effective:

  1. Dry scrubber for SOx control
  2. Wet caustic scrubber for SOx control
  3. Chemical addition to the digester sludge for H2S reduction (SOx control)
  4. Water Scrubber for SOx control
- ☐ Alternate Basic Equipment
- ☐ The following alternate basic equipment was not cost effective:

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 1.4.4 B

Emissions Unit: Digester Gas-Fired Flare

Equipment Rating: 140 ft^3/min

Facility: City of Turlock Water Control

References: ATC # N-3669-6-0; project # N-1053183

Location: Turlock, CA

Date of Determination: 5/16/2006

Pollutant	BACT Requirements
CO	BACT NOT TRIGGERED
NOx	enclosed flare, VOC emission concentration of 0.068 lb/MMBtu
PM10	BACT NOT TRIGGERED
SOx	natural gas-fired pilot
VOC	enclosed flare, NOx emission concentration of 0.06 lb/MMBtu

BACT Status:

- ☐ Small Emitter
- ☐ T-BACT
- ☑ Achieved in Practice
- ☑ Technologically feasible BACT
- ☐ At the time of this determination achieved in practice BACT was equivalent to technologically feasible BACT
- ☐ Contained in EPA approved SIP
- ☐ The following technologically feasible options were not cost effective:
- ☐ Alternate Basic Equipment
- ☐ The following alternate basic equipment was not cost effective: